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FEDERAL COMMUNICATIONS COMMISSION
OFFICE OF SECRETARY

July 29,1996

James Casserly
Senior Legal Advisor
Office of Commissioner Ness
1919 M Street NW
Washington, D.C. 20554

Re: CC Docket No. 96-98

Dear Jim:

Per your request pursuant to §§ 1.1203(a) and 1.1204(b)(7) of the Commission's Rules, 47 C.F.R. §§ 1.1203(a) and 1.1204(b)(7), enclosed are materials previously filed in the record for the docket captioned above.

Sincerely,

Colleen Boothby

278.03/ixn/cassltr.doc

Bellcore
Bell Communications Research

Issues Concerning the Providing of Unbundled Subloop Elements by Ameritech

16 May 1996

Introduction and Background

This report, based on an analysis of the Ameritech network, identifies issues in providing unbundled subloop elements. Unbundling of any element must be approached cautiously to maintain network integrity, ensure reasonable service intervals, and manage costs. Because of the multiplicity of possible subloop elements, the unknown demand for subloop elements, and the wide variation of loop plant characteristics, providing subloop elements is particularly complex. Because of these and other factors (described below in detail), subloop unbundling should be approached with caution, if at all. If regulators determine that such unbundled subloop elements are required to promote competition, an examination of each subloop request on a case-by-case basis should occur.

Outside Plant Design Considerations

In order to understand the implications of unbundled subloop elements, it is necessary to examine the outside plant that provides telephone loops in companies such as Ameritech. A loop consists of a transmission path between the network interface (NI) located at the customer's premises and the main distribution frame (MDF) or other designated cross-connect facility in the Central Office (CO). Loops are defined by the electrical service interfaces they provide rather than by the media or technology used to provide the loop facility.

The loop network, or Outside Plant (OSP), is comprised of feeder and distribution plant. The feeder portion can consist of traditional copper from the MDF to the feeder distribution interface (FDI), such as a Serving Area Interface (SAI) or other metallic cross-connect fixture. Also, it may consist of copper- or fiber-fed digital loop carrier (DLC), which produces derived cable pairs as feeder to the FDI. The feeder pairs, or F1 pairs, are cross-connected to the distribution pairs, or F2 pairs, at the FDI. In some cases, as with downtown high-rise buildings or other customer locations that have large service demands, the copper cables serving these locations extend directly from the MDF to the NI inside the building without any intermediate cross-connect facility.

The geography served by the outside plant is segmented into areas that have common transmission characteristics and design criteria (e.g., length and wire gauge requirements). Each feeder route emanating from the central office provides loop facilities for many of these geographic segments. The distribution and feeder plants are planned to accommodate service demand forecast for the area served with the appropriate capacity and technology. The geographic segments of the OSP are the fundamental components of the loop network.

The CO provides the logical location at which to establish standard repeatable processes to accomplish interconnection in an equitable and efficient manner. Standard electrical characteristics are typically at the MDF which is planned and designed to facilitate connecting loop facilities to different network resources, such as the local serving switch, interoffice facilities or other network elements. Due to this loop design, the MDF (or other cross-connect facility) in the CO provides the natural location to direct unbundled loops to switching facilities or other network elements of certified local exchange companies (CLECs).

Therefore, provisioning entire unbundled loops, that is, loops originating at the MDF and terminating at the NI is a reasonable method for offering the use of existing facilities to market entrants, for which intensive capital investment is infeasible or impractical. In fact, Ameritech began offering use of unbundled loop facilities in Illinois and Michigan in 1995; projections indicate that by year end 1996, over 45,000 Ameritech loops will be used by CLECs with a projected ongoing growth rate exceeding 100% per year.

In contrast to the unbundling of complete loops, subloop unbundling would raise a variety of additional issues concerning planning, network architecture, operational processes, and operations support system capabilities. Careful planning on these issues is required to maintain the integrity, reliability, and security of the network.

Planning Issues

The demand for unbundled subloop elements is unclear. The engineering, provisioning, and pricing of unbundled subloop elements will depend on the projected market demand for specific subloop elements. Since there is no historic data in the Ameritech region (or other areas) for quantifying demand for subloop elements and, in general, no clear statements of intent or commitment to subscribe to specified volumes of subloop elements, projecting market demand for such elements is highly speculative.

Network Architecture Issues

To assess the feasibility of unbundling loop facilities into subloop elements, the variability of the OSP must be considered. The predominant loop designs present in the Ameritech network include approximately 12% of loops served via DLC, 73% of loops provided via FDIs, and 27% of loops fed directly from the MDF to customer sites without FDIs (numbers approximate; the total exceeds 100% because DLC loops also have FDIs).

Subloop interconnection is unavailable on 27% of Ameritech loops. Subloop unbundling is possible for the 27% of loops that are directly connected via copper cables. For the remaining loops, while a DLC or FDI location may seem to afford a possible site for interconnection, several factors mitigate against this as a standard policy.

The following examples illustrate specific implications of interconnection at the subloop element level:

Many existing SAIs are not capable of handling subloop interconnection. SAIs are implemented to provide feeder to distribution connection for a specific geographic serving area containing an identifiable number of living units or other customer sites with a specific forecasted service demand. Each SAI is designed to provide a specific feeder to distribution ratio that is appropriate for the area served. The SAI is sized to afford termination of the total number of feeder pairs and distribution pairs needed based on the expected service demands of the area served. In many cases, SAIs are ordered from the manufacturer with cable pairs preconnectorized and terminated in the factory.

SAIs can be pole mounted (if the size of the "box" permits) or ground mounted on a concrete pad. In either case, provision for the entry of a specific number of cable sheaths is provided. Typically, the full compliment of cables that can enter are provided upon initial installation and extended to locations in the feeder and distribution portions of the loop.

If a CLEC required access for some number of facilities to this cross-connect fixture, it is probable that the whole SAI would need to be replaced to provide this increase in cross-connect capability. As there is a size restriction for pole mounted fixtures, it is possible that replacement may involve relocation of the fixture to a new site with a concrete pad. Additionally, appropriate engineering, construction, and acquisition of right-of-way may be needed to move the fixture.

In the case of a pad mounted fixture, a determination of the best method for replacement would be required. This may depend upon the particular supplier's fixture design, the age of the fixture, the overall condition of the fixture and cross-connections inside, the type of splicing methods used (e.g., connectorized or not), the size of concrete pad, the number of conduits provided for cable entry, the amount of slack that can be provided for the entry cables, and several other possible considerations including how large the new fixture should be.

In addition, the number of CLECs that should be afforded access to the replacement fixture is unknown, as is the number of cross-connects to be provided for each one. This complicates the issues of cost recovery for all involved parties.

In Illinois, Ameritech has in excess of 24,000 above ground cabinets and 240 Controlled Environment Vaults (CEVs) with additional sites being installed each year. The effort to rebuild even a small fraction of these sites would be significant.

Space and interoperability issues limit existing Remote Terminal (RTs) capability for subloop interconnection. RT sites are custom designed and configured for specific vendor equipment and specific service requirements. For example, one vendor's above ground cabinet can provide a maximum of 2016 derived lines. The space within this cabinet is fully utilized by the vendors' own transmission equipment, related support equipment (e.g., power equipment, batteries, protection) and existing feeder and distribution terminations.

In the case of CEVs, 16- and 24-foot long versions are available. The CEV size is selected based on the service demands of the area to be served and space requirements of contained equipment. Typically these units are pre-assembled at a factory prior to being shipped to a job site. As the cost of these units is very high, all available space inside the CEV has a planned use (e.g., each shelf in each equipment rack is designated for use). As a result, there typically is no undesignated space remaining to afford a CLEC the opportunity for entry.

Even if space in an RT were available, there are still significant technical and cost issues to be considered. DLC systems are specifically designed for a single provider network. More specifically, they are designed to operate in concert with a single CO-based unit (e.g., switch or central office terminal). Therefore, if space for a CLEC to place equipment capable of providing standard DS-1 interfaces to the Incumbent Local Exchange Carrier's (ILEC) RT were available, the majority of current RTs would not be equipped to interoperate with CLEC CO equipment.

Subloop unbundling causes new plant to be oversized. The administrative issue of cost recovery and sizing of new loop plant elements in ongoing normal construction programs is also a concern. The ILEC may be required to routinely increase the capacity (and therefore the cost) of each and every new SAI and DLC Remote Terminal introduced to the loop network by a factor based on speculative forecasts.

Subloop unbundling limits modernization of the outside plant. ILECs have been developing plans for the deployment of fiber-based broadband networks to provide multiple services, including voice telephony, high-speed interactive data, and video. These fiber-based networks also provide increased network integrity by replacing the more trouble-prone copper plant. This network modernization may be severely limited by the provision of subloop elements. If an interconnector has access to subloop elements in the copper plant, modernization of the plant to fiber could not be accomplished unless the interconnector was willing to discontinue use of its copper subloop elements. Therefore, subloop elements have the potential to freeze the outside plant technology.

Subloop unbundling increases the likelihood of incompatible signals. The deployment of certain technologies is impacted by the presence of existing technologies in the loop plant. For example, Asymmetric Digital Subscriber Line (ADSL), used for Video Dial Tone and Internet access, cannot coexist with T1 line loops inside the same binder group of a copper cable. Spectrum compatibility guidelines are administered to prevent this from occurring at the time of provisioning. If the subloop is unbundled, there will be no way of preventing multiple providers from deploying incompatible technologies and no way of managing their deployment in the loop plant. Therefore, new and existing services may be degraded by subloop unbundling, and costly ongoing rearrangements may be necessary to restore service quality.

Subloop unbundling destabilizes the plant and decreases network integrity. Stabilization of Ameritech's current plant has been designed to limit the craft field activity required in the normal service activation process. This is accomplished by sizing FDIs to accommodate specific numbers of distribution and feeder facilities based on the number of living units or business customers served, and a forecast of expected service demand. Thus, any spare feeder facility can be easily connected to any distribution pair thereby reducing both the number of field locations visited per dispatch as well as reducing the number of dispatches required. Many times there is no provision for additional feeder facilities to enter these sites as would be required to afford interconnection capability to a CLEC.

For the last several years, both RT sites and FDIs have been designed using pre-connectorized cables to reduce the costs associated with installation of these loop elements. This pre-connectorization further complicates interconnection from alternate sources of feeder facilities in the case of RT sites, as the distribution emanating from the RT is effectively "hard wired" to the DLC equipment. In the case of FDIs, the preconnectorized cables occupy all of the cross-connect capability in the FDI precluding the introduction of any additional facilities.

Subloop unbundling will lead to increased levels of plant rearrangement in fixtures and splices to accommodate the various interconnector requests. Studies have shown that the level of rearrangement and change in fixtures and splices correlates directly with customer trouble reports. Thus, the increase in OSP work required to implement subloop unbundling decreases network integrity.

Operational Issues

The manual work related to capacity provisioning (i.e., the planning and engineering associated with unbundled subloops), service activation (i.e., the initial provisioning of unbundled subloops), and service assurance (i.e., the ongoing proactive and reactive maintenance of those subloops) and its associated costs will be greater for subloop unbundling than for loop unbundling.

Subloop unbundling increases capacity provisioning costs. If use of subloops by CLECs is mandated, basic planning and engineering guidelines must be modified in order to ensure that all new growth investments allow for the possibility of CLEC demand at various interconnection points in the loop. For existing plant, as requests for entry are received by the ILEC, an engineer must study the particular network configuration in order to determine and document work required to enable the CLEC access to the plant requested (e.g., distribution plant from a cross-box to the customer's premises). It can take anywhere from hours to days for an engineer to analyze and draft an engineering work order.

Subloop unbundling increases service activation costs. A key factor which would contribute to increased work and cost for provisioning a service request centers around field dispatches required to visit the subloop interconnection points. Of all the work associated with service activation, outside plant craft work is second in cost to order negotiation for bundled loops. The fact that this cost has been contained is due to Ameritech's continued efforts to stabilize its plant through judicious use of rehabilitation and dedicated outside plant, thus reducing outside craft visits. Ameritech is currently experiencing a 20% dispatch rate for all bundled services (21% of service activation costs). In Illinois and Michigan, where unbundled loops have been offered, the dispatch rate has been as high as 36% (25% of service activation costs). However, with a required dispatch rate of 100% for subloop activation, the proportion of activation costs associated with outside dispatch rises to 46%. Overall, the total service activation cost per service request for a subloop is 53% higher than a similar request for an unbundled customer premises to MDF loop. This increase is in spite of the fact that other work is eliminated (e.g., placing a cross-connect from the MDF to the interconnector's equipment).

Subloop unbundling increases service assurance costs. Currently, bundled telephone services benefit from automated testing systems that can quickly verify impairments and guide the dispatch of a technician to the fault location. Unbundling loops limits the availability of automated testing because the imbedded testing systems require access to the loop at the ILEC switch, which is unavailable in the unbundled loop. However, the appearance of the unbundled loop in a central office provides access for testing (with technician involvement or new access equipment required). Unbundled subloop elements will require a technician dispatch to a field site for every trouble report received from the interconnector. Even in the ideal case, where the interconnector employs testing systems and procedures equal to the ILEC, complexity and cost are increased. For example, for a fault near the subloop interface, even the best testing system cannot accurately identify whether the fault is in the ILEC's facility or in the interconnector's facility. In cases where the interconnector is unable to provide testing because no test system is available, or digital architectures that limit testing are used, maintenance costs and time to repair may be significantly increased. Multiple dispatches may be necessary to enable a technician with the required training and equipment to be sent to the fault location, and coordinated joint testing may be needed.

Without remote testing, costly dispatches will be required to clear cases of "no trouble found." The current percentage of "no trouble found" trouble reports in Ameritech is 37% of OSP trouble reports. At a per dispatch time of 2 1/2 hours, the impact of dispatches resulting in no trouble found is significant. Additionally, to ensure security and network integrity, an Ameritech dispatch is necessary for all trouble reports where the interconnector requires access to the interconnection point for testing. This requires costly coordinated dispatches when there may be no fault in the Ameritech network.

A scenario was constructed to examine the cost increases resulting from work involved in resolving a trouble report. Based on Ameritech's current processes and experience to resolve troubles reported in unbundled loops, the average cost for the service assurance process will increase by a factor of about 56% for subloop unbundling over the cost of that for unbundled loops.

Operation Support Systems Issues

Subloop unbundling requires either expensive modifications to existing OSSs, or labor intensive manual work-arounds. Timely and cost-effective engineering, provisioning, and administration of subloop elements may require significant enhancements to Ameritech's OSSs above and beyond those required for loop unbundling. The scope of these enhancements and the timing of their implementation will depend on the type and configuration of subloop elements being offered, and the volume and frequency of the requests. Whereas manual work-arounds may be viable for a small volume of requests, a mechanized approach will be more effective at higher volumes.

While no complete determination of the cost and timing of the necessary software system enhancements has been completed to date, preliminary examination shows that current system functionality will need to be enhanced to handle entry, storage, display, and communication of subloop location information. Consider, for example, changes in the service order flow-through process (i.e., the ability to provision service requests with no manual OSS intervention). The loop assignment system [LFACS] currently assumes a loop connecting the central office to the customer premises. It has limited ability to stop or start assignments mid-loop. In order to receive meetpoint and meetpoint location information and assign to those meetpoints, it may require LFACS to be fully rearchitected, or replaced, at considerable expense and time. In addition, in cases where digital loop electronics are involved, administratively difficult and costly preallocation of facilities may be needed.

Similarly, the interface between the service order administration and the assignment function [SOAC to LFACS] would need to be extended to handle other than F1 loop information. SOAC would need to be able to send this information to the circuit connectivity location and equipment inventory database [NSDB] which would also need to be enhanced to store and display loop information other than F1 feeder plant. If digital loop electronics are involved (and are being modeled in the central office equipment inventory system [SWITCH]), then SOAC needs to send the meetpoint and meetpoint location information to SWITCH as well.

In situations where the CLEC is providing the distribution portion of the loop to the customer premises, there may also be an impact on any systems currently containing a "living unit" field [e.g., ACIS SAG]. These systems may need to be able to distinguish between both the ILEC's meetpoint with the CLEC and the actual customer location. ACIS SAG, SOAC, LFACS and other related systems would have to be studied to better understand this impact. Also, LFACS would need to be enhanced to accept pre-specified F1 loops from the CLEC.

Subloop unbundling also significantly complicates capacity planning. The loop planning system [LEIS] currently assumes an end-to-end loop. Its complex timing and sizing algorithms may require enhancements to handle spare capacity allocation and ownership assignment for subloop components.

In addition to the direct cost of enhancements of the OSSs, other related costs for subloop unbundling can be expected to be incurred. For example, the development of new or changed methods and procedures associated with system modifications and the associated training of technicians and other craft employees on these enhancements must also be considered.

As mentioned earlier, manual work-arounds would be necessary if the OSS enhancements are not undertaken. For example, each order would have to be coded for manual intervention y craft employees who would have to access each system in order to update and activate information. Such work-arounds would be required not only for each circuit set-up, but for all changes and disconnects as well. High flow-through has been essential for Ameritech to achieve its cost and quality objectives. Increasing the quantity of manual work-arounds is directly in conflict with these objectives.

Conclusion

This document identifies and examines issues associated with offering unbundled subloop elements in the Ameritech network. These issues are over and above those for intact loop unbundling, which Ameritech currently offers. Examination of these issues reveals that subloop unbundling will create enormous technical, administrative, and operational challenges that need to be contained by judicious limitation of subloop interconnection by the FCC.

Intel Corporation
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HF3-03
Hillsboro, OR 97124
(503) 696-7162

intel®

By FAX

July 25, 1996

The Honorable Reed E. Hundt
Chairman, Federal Communications Commission
Room 814, 1919 M Street, N.W.
Washington D.C. 20554

Re: CC Docket No. 96-98 Ex Parte Comments of Intel Corporation

Dear Chairman Hundt:

The Commission should adopt rules in the above docket that facilitate the competitive provision of higher bandwidth telecommunications services.[1] Specifically, this is to request that the FCC require the unbundling of the local loop in any and all feasible parts and subparts, and also require that the local exchange carriers ("LECs") permit a competitor to provide data over voice services on the same loop. The Commission should require the LECs to establish reasonable rates for any unbundled facility requested by a competitor.

Cries of "harm to the network" should not be allowed to delay competition or the provision of new services by competitors. The incumbent LECs should not be set up as the arbiters of technical feasibility, or otherwise be allowed to use their custody of the loops or their superior bargaining power to delay or thwart the provision of new services by competitors. The LECs should be required to cooperate with a competitor's attempts to conduct market or technical trials of new services over unbundled loops or parts of such loops. A competitor will constrained by the marketplace if it fails competently to deliver a promised service. Thus, the Commission should rule that the LECs must provide interconnection and collocation to competitors at any point and for any equipment, and access to any unbundled facility, a competitor requests and must establish reasonable rates therefor.

The above measures are critical to ensure that consumers enjoy the full benefits of the computer industry's hardware and software products and the rich content that the Internet community stands ready to provide.

Sincerely,

Dhruv Khanna
Senior Communications Attorney

cc. Commissioners Chong, Ness and Quello; and William Caton, Acting Secretary

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[1] The incumbent local exchange carriers have not been driven by competition to maximize the use of, and deliver higher bandwidth over, the local loop. With about a third of our population and a quarter of our total access lines, Germany today has more than twice the number of ISDN subscribers. In addition, DSL (Digital Subscriber Line) technologies are capable of delivering digital transmissions 100 times faster than the speeds that can be derived by today's fastest POTS modems.

INFORMATION TECHNOLOGY INDUSTRY COUNCIL

July 22, 1996

The Honorable Susan Ness
Commissioner
Federal Communications Commission
Room 832
1919 M Street, N.W.
Washington, D.C. 20554

Re: CC Docket No. 96-98 -- Ex Parte Comments of the Information Technology Industry Council

Dear Commissioner Ness:

I am writing on behalf of the Information Technology Industry Council (ITI) to urge you to establish pro-competitive interconnection rules under Section 251 of the Telecommunications Act of 1996. Such rules will be crucial prerequisites to competition in the provision of a variety of communications services, including advanced data services.

ITI represents the leading U.S. providers of information technology products and services. Our members had worldwide revenue of over $381 billion in 1995 and employ more than 1.5 million people in the United States. It is our member companies who provide much of the hardware, software, and services that are making the National Information Infrastructure a success. We believe it is important to the future of the U.S. economy that the Commission's interconnection and unbundling rules accommodate the needs of our industry.

As you know, the local exchange market is no longer just a voice telephone world – business and residential users now depend on a variety of new digital services, including data transmissions, that require expanded bandwidth capacity from local network facilities. ITI strongly urges you to craft interconnection and unbundling rules that will enable competitive providers to offer these new services in the most economically and technologically efficient manner possible. Specifically, we urge you to establish:

- an interconnection rate structure that supports and encourages the data transmission needs of the information technology industry,

- unbundled local loop sub-elements, and

- collocation opportunities within the loop.

These policies are essential to competitive high bandwidth services for homes and businesses. Further, they will resolve incumbent local exchange carriers' claims that data traffic is degrading switch performance and raising public switched network costs.

Local loops are the crucial ingredient and the last barrier to full deployment of the information technology and services that consumers are demanding. By requiring local exchange companies to disaggregate and unbundle their networks at the maximum number of points, the Commission will enable new competitors to enter local markets and will permit enhanced service providers and other users to select the network services that best meet their technical and economic needs. Disaggregating local loop services into the individual elements required for data and other non-telephony traffic introduces a plethora of new service opportunities, including the provision of high bandwidth data services, for competitive companies. The immediate result would be improved access to the NII, maximum choice and flexibility for users, and affordable data services.

It is especially important, in light of the demand for new data services that transcend state and national boundaries, that the Commission adopt uniform, nationwide parameters for the interconnection, unbundling, collocation, and pricing of local exchange company service elements. National requirements, rather than a patchwork of inconsistent state requirements, are essential to competition and wide consumer choice. Uniform national rules will reduce regulatory burdens and lower the capital costs of entry, thus easing the investment burdens on start-up competitive services.

As you consider new rules for interconnection and unbundling, we strongly urge you to establish a national framework that will provide a flexible foundation for the exciting new applications and services that advances in information technology are making possible.

Sincerely,

Rhett B. Dawson
President

cc: Jim Casserly, Senior Legal Adviser
William Caton, Acting Secretary, FCC

Compaq Computer Corporation
P.O. Box 692000
Houston, TX 77269-2000

20555 SH 249
Houston, TX 77070-2698
Tel 713.370-0670

COMPAQ

July 23, 1996

The Honorable Susan Ness
Commissioner
Federal Communications Commission
Room 832
1919 M Street, N.W.
Washington, D.C. 20554

Re: CC Docket No. 96-98 -- Ex Parte Comments of Compaq Computer Corporation

Dear Commissioner Ness:

I am writing on behalf of Compaq Computer Corporation to ask you to establish pro-competitive, data-friendly interconnection rules under Section 251 of the Telecommunications Act of 1996.

Compaq is the world's largest supplier of personal computers and the fifth largest computer manufacturer in the world today. As a major contributor to the growth of the National Information Infrastructure, Compaq believes it is crucial to the future of the U.S. economy that the Commission's interconnection and unbundling rules accommodate the needs of the computer industry, such as high bandwidth connections to support digital services and Internet access.

As Compaq's Chief Technologist, I believe that local telephone loops are the crucial ingredient and the last barrier to full deployment of the information technology and services that our customers are demanding. By requiring local exchange companies to disaggregate and unbundle their loops, the Commission can ensure competition and diversity in the network upon which information technology depends. Disaggregating local loop services into the elements required for data and other traffic will enable a plethora of new service opportunities, including the provision of high bandwidth data services, for competitive companies. Technologies, such as xDSL, already exist that could provide dramatic increases in the bandwidth available to consumers, if the Commission adopts pro-competitive interconnection rules. The immediate result would be improved access to the NII, maximum choice and flexibility for users, and affordable data services.

It is especially important, in light of the demand for new, high-bandwidth data services that transcend state and national boundaries, that the Commission adopt uniform, nationwide parameters for the interconnection, unbundling, collocation, and pricing of local exchange company service elements. National requirements, rather than a patchwork of inconsistent state rules, are essential to competition and wide consumer choice.

As you consider new rules for interconnection and unbundling, I strongly urge you to establish a national framework that will enable the exciting new applications and services that the information technology industry is making possible.

Sincerely,

Robert W. Stearns
Senior Vice President
Technology and Corporate Development

cc: William Caton, Acting Secretary
James L. Casserly

IMPLEMENTATION OF THE LOCAL COMPETITION PROVISIONS IN THE TELECOMMUNICATIONS ACT OF 1996 -- CC DOCKET NO. 96-98

Ex Parte Presentation by the
Information Technology Association of America

ITAA MEMBERS' INTEREST IN CC DOCKET NO. 96-98

- Major consumers of local exchange and interexchange services
- Major providers of enhanced services

CONSUMERS WILL BENEFIT FROM INTERCONNECTION RULES THAT:

- Prescribe uniform national policies
- Mandate cost-based pricing
- Require maximum unbundling without use restrictions

THE DECISIONS REACHED IN THIS PROCEEDING WILL IMPACT THE FUTURE OF THE INTERNET, OTHER ON-LINE INFORMATION SERVICES AND ACCESS CHARGE REFORM

- Use of the Internet and other on-line information services is growing
- Feature Groups are the problem, not the solution

THE COMMISSION SHOULD REQUIRE OR, AT A MINIMUM, NOT FORECLOSE THE UNBUNDLING OF THE LOCAL LOOP AND OTHER LOCAL EXCHANGE NETWORK ELEMENTS

- Enhanced service providers and other users should be able to select the network services that best meet their technical and economic needs

ITAA

- Local loops should be unbundled in a way that enables data and other traffic to be routed before it reaches the central office switch. Such unbundling would:

  - Allow interconnection at a number of established network points inside and outside the central office

  - Moot unsupported claims about the impact of the Internet and other on-line information services on LEC switches

  - Make more efficient use of LEC plant

  - Permit flat-rate pricing

  - Lower costs to consumers and service providers

  - Create new service opportunities for LECs, CLECs and IXCs

  - Improve access to the NII

- Other network elements should be unbundled so as to permit the offering of services tailored to the needs of enhanced service providers and other users with data communications needs

Loop Elements
Illustrative Example
Using Technical Standard
Interfaces for Interconnection
Issue 1

Subloop Elements
Distribution
Concentrator/Multiplexer
and Feeder

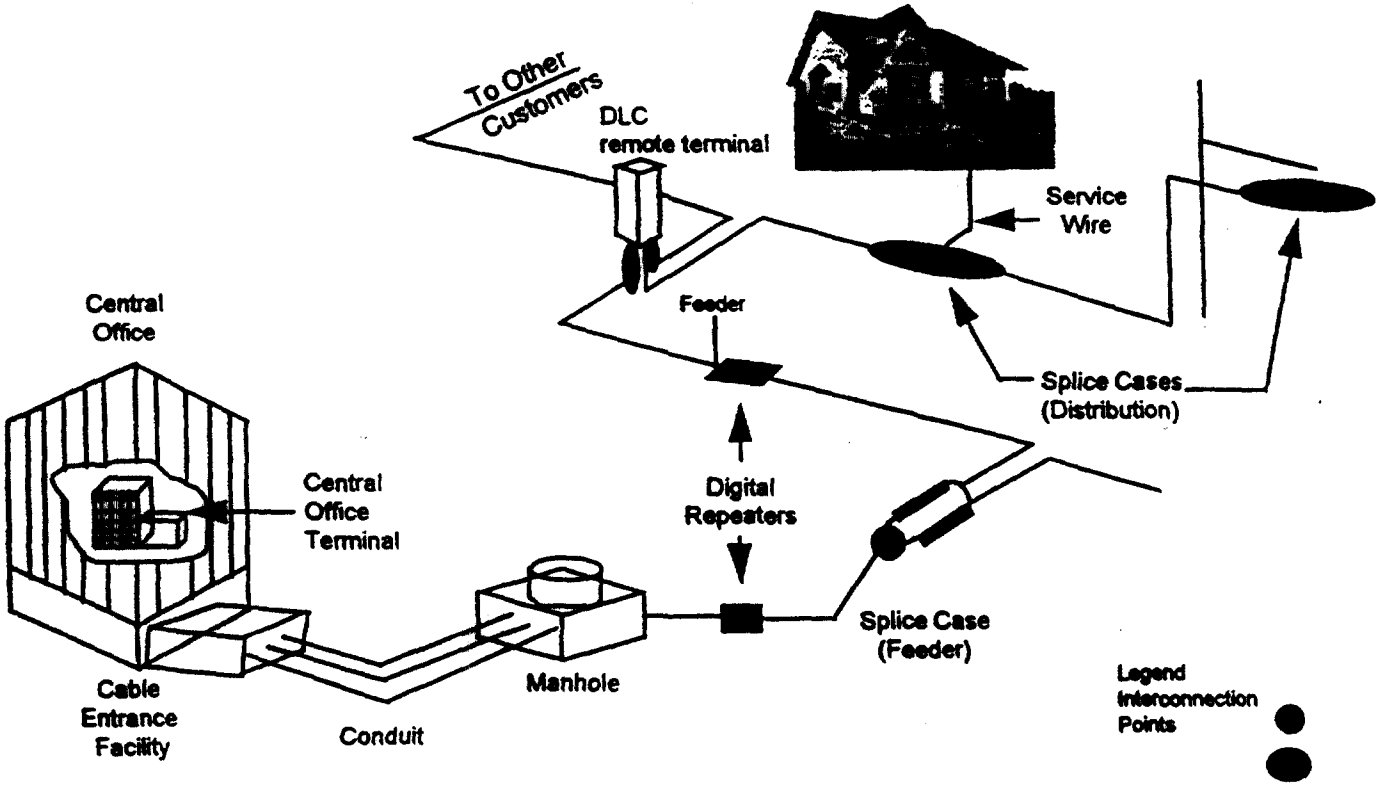


Figure 1 Central Office to the Home

Network Elements Connected via Industry Technical Standards:

- **ANSI T1.403 - 1989 American Standard for Telecommunications- Carrier to Customer Installation, DS1 Metallic Interface Specification**

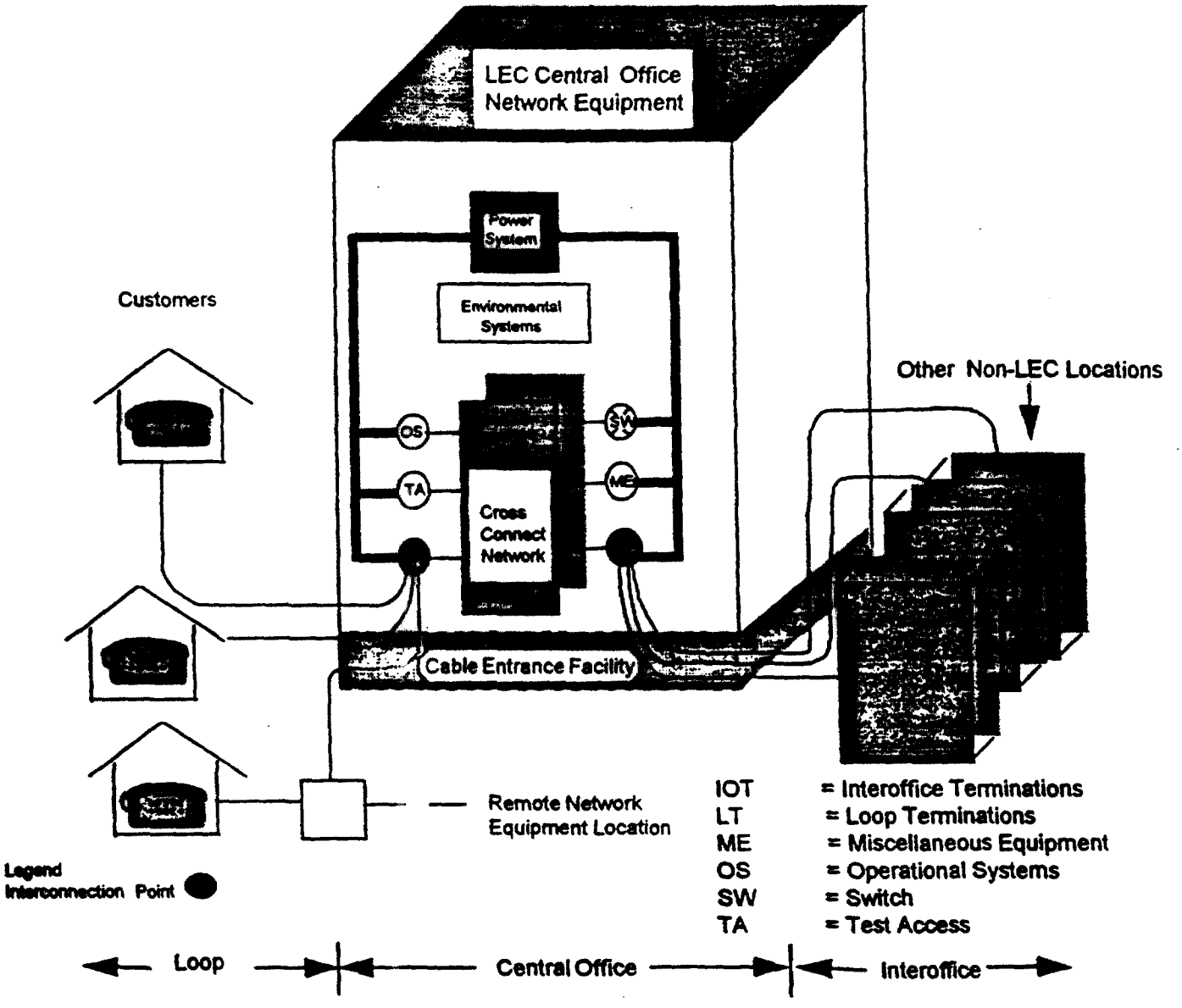
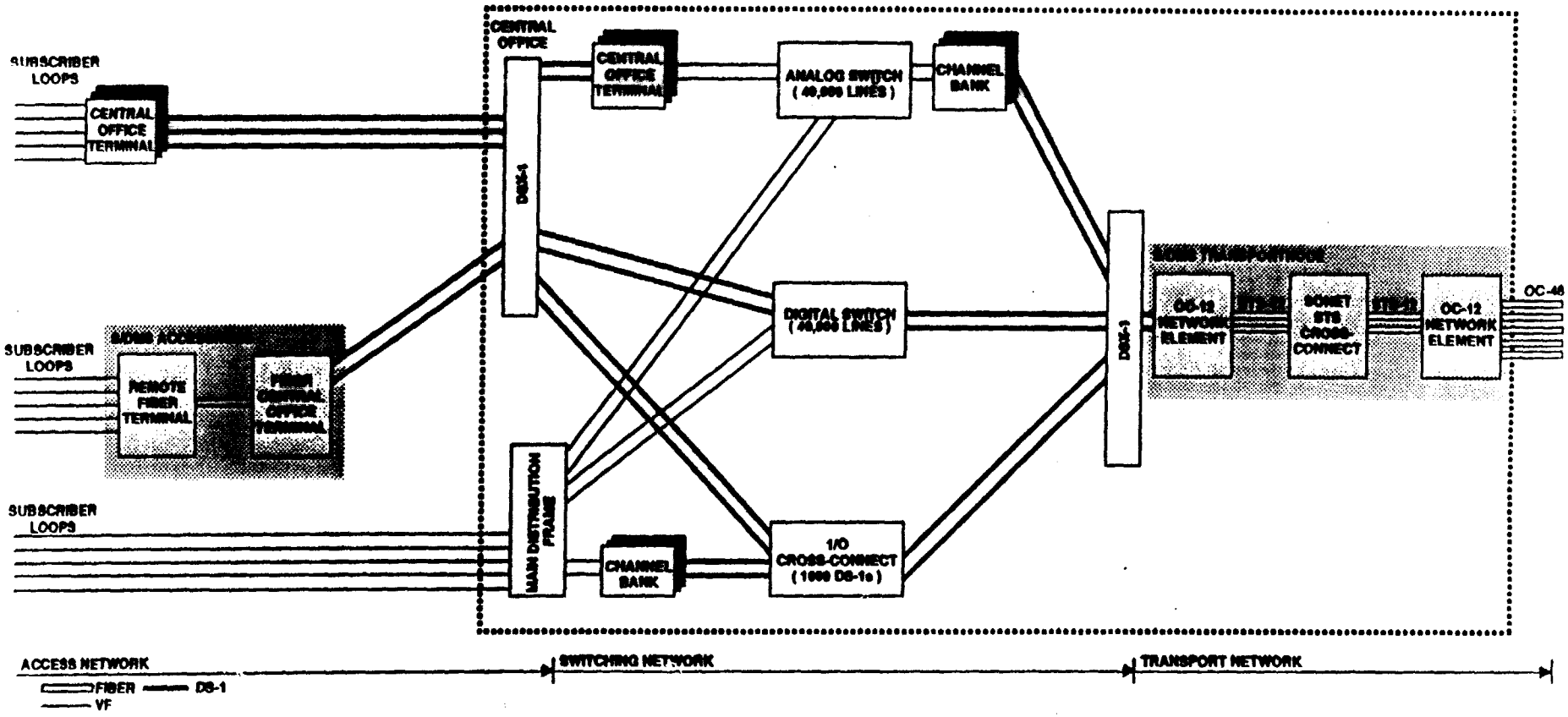


Figure 2 - End Office Switching

Network Elements Connected via Industry Technical Standards:

- ANSI T1.401.01-1994 Interface Between Carriers and Customer Installations - Analog Voice Grade Switched Access Lines Using Loop-Start and Ground-Start signaling with Line-Side Answer Supervision Feature.

WIRE CENTER EVOLUTION



Local Competition

The local exchange market is not just a telephony world anymore

The FCC's rules for local exchange and exchange access services must:

- encourage new services and innovative applications
- maximize consumer choice
- reduce and rationalize prices
- recognize the existence of services other than POTS and protect competition in those markets

The FCC's rules cannot handicap the competitive pressure from enhanced services and private networks by treating non-carriers differently from carriers

Broadband loops

Local loops are the crucial ingredient and the last barrier for full deployment of information technology and services

Broadband capacity on local loops requires:

- Unbundled loop sub-elements
- Collocation at earliest possible points

Unbundling and collocation will:

- maximize consumer choice
- enable competition in local exchange markets
- respond to ILEC claims that data traffic is degrading switch performance and raising PSN costs

Availability of unbundled rate structures

The Commission must extend pro-competitive unbundling and pricing rules to all services and customers under § 251 or through Part 69 access reform

At a minimum, the Commission must not foreclose competition in data services by restricting the scope of its unbundling and pricing rules to facility-based CLECs

Federal uniformity

Congress established a national competitive framework for the FCC to implement

National requirements for unbundled network elements and efficient pricing standards are prerequisites to competition

Engineering standards and regulatory regimes that vary from jurisdiction to jurisdiction inhibit competition

National rules do not foreclose accommodation of unique state conditions

Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

ORIGINAL

In the Matter of	)	
	)	
Implementation of the Local Competition Provisions in the Telecommunications Act of 1996	)	**CC Docket No. 96-98**
	)	

REPLY COMMENTS OF AT&T CORP.

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5/30/96

1. **Loop elements.** There is broad agreement among the commenters that at least the loop should be unbundled. Some commenters recommend that the network interface device be unbundled as a separate element, and AT&T agrees with that recommendation.[29] However, although the Justice Department and several carriers support further subloop unbundling as well, the ILECs contend that it is technically infeasible.[30]

Most of the ILECs' "technical infeasibility" claims amount to arguments that some implementation work and investment will be necessary before subloop elements can be made available. As AT&T has explained, these considerations are irrelevant to technical feasibility. However, if substantial resources would have to be dedicated to make subloop elements available for purchase and interconnection, then it may be appropriate to omit such subloop elements from the initial set of elements that must be unbundled and tariffed immediately, provided that ALECs' right to order these elements is confirmed. The ILECs would then tariff the subloop elements and interconnect the ALEC when orders are received, and there is a clear sign of market demand for those elements and a willingness to pay legitimate implementation costs.

2. **Switching element.** Although the ILECs purport to agree that switching must be offered as an unbundled element (see, e.g., Bell Atlantic at 25; BellSouth at 40; GTE at 37; Pacific at 54; USTA at 32), their proposed definition of that element would violate the Act by

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[28] (...continued)
unbundling transport (see NPRM ¶¶ 104-106). AT&T likewise supports those proposals, and will not address transport elements further in these Reply Comments.

[29] See ALTS at 28; ACTA at 19; General at 12; LDDS at 41-42; MCI at 16, 19-20; TCC at 36; TRA at 33.

[30] Compare DOJ at 21; Ad Hoc Users at 22-23; ALTS at 28; ACTA at 19; C&W at 20; Citizens at 15; CPI at 16; CompTel at 31; General at 12; Intermedia at 10-12; LCI at 17; LDDS at 41-42; MCI at 16, 29-30; Ohio PUC at 35-36; TIA at 11-12; Wyoming PSC at 21; with Ameritech at 37-42; Bell Atlantic at 23-25; BellSouth at 39; GTE at 33-37; NYNEX at 67-69; Pacific at 52-53; SBC at 38-40; USTA at 30-32.

BEFORE THE
FEDERAL COMMUNICATIONS COMMISSION
WASHINGTON, D.C. 20554

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judgment as to the most efficient manner of entry, rather than being constrained by an ILEC's determination of the bundle of network elements it is willing to offer. By allowing entrants to make these critical choices, the statute promotes both rapid entry and diversity of service offerings, two important features of the competitive framework envisioned by Congress for the benefit of consumers.

In light of this statutory background, the Department supports the Commission's decision (Notice ¶¶ 92-116) to require unbundling of local loops, at the sub-element level, local switching capability, local transport and special access, databases and signaling systems, as well as the network elements discussed in Paragraph 116 of the Notice.[7] At this stage, we leave to others the task of commenting on the specific levels of sub-element unbundling that is technologically feasible at this time. The statutory goal, however, is to require as much unbundling as is technologically feasible, and the Commission should, at the outset, establish broad rules to that end. Moreover, the states should be allowed to require additional unbundling, on a compensated basis, unless the Commission receives persuasive evidence that allowing the states such authority would endanger network reliability or retard entry.

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[7] In Paragraph 116, the Commission proposes to require the unbundling of subscriber numbers, operator call completion services and "information sufficient for billing and collection or used in the transmission, routing, or other provision of a telecommunications service".

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however, the Commission should include as unbundled network elements those elements that ILECs are providing or have provided to other ILECs, including database access.

Paras. 79 and 93(4) of the Notice ask whether, and to what extent, the Commission should establish minimum requirements governing unbundling, citing as examples provisioning and service intervals, nondiscrimination safeguards, and technical standards. Ad Hoc supports such requirements because many of the state and carrier benefits of such requirements cited in the Notice inure equally to users. In particular, users would benefit from the greater network and equipment interoperability resulting from minimum requirements, the reduced need for duplicative decision-making when a user's network is distributed across more than one state, economies of scale, and the more efficient planning and deployment of interstate networks that is possible with mandatory provisioning requirements.

1. Local Loop

The Notice tentatively concludes that the loop element should be further unbundled into subelements. Ad Hoc supports further unbundling of loop plant since functional subelements exist and opportunities for competitive provision of equivalent services vary by subelement. For example, feeder plant, which concentrates individual subscriber lines onto a single facility, provides quicker opportunities for competitive entry than distribution plant, the most capital- and

labor-intensive element in a local exchange network for which no viable competition currently exists.

2. *Local Switching*

The Commission should unbundle individual functions within the local switch to permit CLECs to pick and choose the switch-based functionalities they need. Competitors are likely to vary in the elements they require because they have differing abilities to substitute functionalities delivered by their own networks for those provided by central office switches. FCC should reject the Illinois "platform" approach[22] because it raises entry costs for new competitors by forcing CLECs to pay for switching functions they may never need or use. CLECs, IXCs, ESPs, and users should also be given unbundled access to all the services and functions performed by the switch, not just the capacity to switch traffic from line to line. In particular, these parties need access to the unbundled switch functionalities that CLECs, ESPs and end users can use to provide logical access to their services.

The Commission should also unbundle switching elements to the level required to keep rate elements cost-causative. In other words, switching functions should be unbundled into elements that correspond to cost centers. If the number of loop connections, for example, increases switching costs, the Commission should require the ILECs to establish a switching rate element that varies by number of line connections.

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22 NPRM at ¶ 100.

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